

NEW AUSTRALIAN SPECIES OF THE FAMILY
AGRIONIDÆ [NEUROPTERA : *Odonata*].

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(Plate xvii.)

In this paper eleven species are added to the list of Australian *Agrionidæ*, bringing the total number recorded from 28 up to 39. Of these, ten are new to science; the eleventh has only been recorded before from tropical Africa, where it is common. All the new species come from North Queensland. Two genera, *Alloneura* and *Ceriagrion*, are added to the Australian list; and one species, placed provisionally in the genus *Ischnura*, will probably form the type of a new genus. Of the new species, two each belong to *Lestes*, *Alloneura*, *Pseudagrion* and *Agriocnemis*, and one each to *Argiolestes*, *Ischnura* (?) and *Ceriagrion*.

All these species were taken by myself during a trip to Northern Queensland in the summer of 1904-5. One or two were met with in abundance, and it is remarkable that they have not been recorded before. Most of the species are, however, exceedingly rare or local, and were only obtained after ceaseless exploration of the same districts for days. The females of two of them are yet to be discovered.

I am greatly indebted to M. René Martin of Le Blanc, France, for his kind aid and advice in identifying many of these species as new; for it will be understood that only one who has a world-wide knowledge of the *Odonata*, and especially of Polynesian species, could with safety be relied upon to determine new tropical species and to fix their affinities.

All the descriptions given were made either from the living insects, or from insects freshly killed, as this is the only possible way of recording the true colours of our *Odonata*.

1. ARGIOLESTES AUREUS, n.sp.

♂. Total length, 39 mm.; abdomen, 31 mm; wings, 24 mm.

Wings.—Rather broad, rounded at tips; *neuriation* black; *ptero-stigma* broad, rhomboidal, black, 1 mm. *Nodal Indicator*

2	17-18
2	17-18

Head.—*Epicranium** orange, a black transverse band between the eyes, enclosing the antennæ and the ocellar area, which are black. *Clypeus* and *labrum* orange. *Labium* and *mandibles* deep black.

Thorax.—*Prothorax* black; on either side a large orange spot followed by two tiny elongated marks, one below and the other behind it, of the same colour. *Meso-* and *metathorax* bright orange above and on sides; interalar space deep black; scuta, scutellæ, and wing-joints touched with orange; this black colouration extends in front of the fore wing joints and forwards along the dorsal ridge, narrowing down almost to a point, thus forming a black spear-head mark cleaving the rich orange of the thorax in two. On either side, near the mesocoxa is a large squarish black patch; there is also a small black spot just below the hind wing-joints. *Underside* marked with black and dull yellowish-brown. *Legs* black, spiny.

Abdomen thin, cylindrical, 9-10 slightly enlarged. Colour metallic black throughout, 2-3 with a basal spot of orange-brown on either side, close up to suture.

Appendages.—*Superior* 1.5 mm., large, black, furcate, slightly separated at bases, tips touching *Inferior* minute. (See Plate xvii., fig. 1a).

♀. Considerably larger than ♂. The two specimens measured differed in size as follows:—Total length, *a* 37 mm., *b* 41 mm.; abdomen, *a* 28.5 mm., *b* 32 mm.; wings, *a* 27 mm., *b* 29 mm.

Wings as in ♂.

* The term “epicranium” as applied to the *Agrionidæ*, includes the occiput, vertex and ocellar area, and the front.

Head.—Black epicranial band much thicker; sutures of *clypeus* black; *labrum* jet black.

Thorax marked with dark orange-brown, the black intersecting markings more extensive.

Abdomen cylindrical, stouter than in ♂; shining bronzy-black; 2-5 with small brown basal spots. Laterally 8-10 appear much enlarged, 8 ending below in an enormous brownish curved spike over 2 mm. long; 9 carries a thick black spike with its point curving upwards and carrying near the tip two short black filaments, each ending in a minute hair pointing downwards. (See Plate xvii., fig. 1b).

Appendages short, pointed, wide apart, black.

Hab.—Kuranda, N.Q.; December, 1904; very rare.

Only three specimens of this species have been taken, one male and two females. They were found flying about the thickly wooded banks of one of the jungle creeks, very far from any settlement. Their flight is weak and they are fond of clinging to twigs, like *Synlestes weyersi*; or settling on rocks with outspread wings, like *Argiolestes icteromelas*. This latter habit is contrary to the general habit of all other *Agrionidae*, which rest with folded wings. This species has all its wings of the same length, and very blunt and rounded at the tips, giving it a somewhat peculiar appearance. It is easily distinguished from the other two Australian species of the genus by its brilliant orange thorax.

2. LESTES TENUISSIMUS, n.sp.

♂. Total length, 47 mm.; abdomen, 38 mm.; wings, fore 24 mm., hind 23 mm.

Wings.—*Neuration* black; *pterostigma* 1.3 mm., fairly broad, black. *Nodal Indicator*

2	11-13
2	11-12

Head.—*Epicranium* dull fuscous, shading to dull greyish-blue near the eyes; *ocelli* black; *antennae* long, 2.5 mm., black, basal joint thickened; *postclypeus* dull fuscous; *anteclypeus* very pale greenish-blue; *labrum* pale greenish-blue; *labium* and *mandibles* pale dirty brownish, mouth edged with black.

T h o r a x.—*Prothorax* very dull fuscous, a bluish spot on each side. *Meso-* and *metathorax* dull bluish-grey above, a broad band of olive-brown covering the dorsal ridge and extending well on to the shoulders and carrying a central projecting spot on each side on either side a narrower dull brown subhumeral band, with a brown spot below it, two elongate triangular black spots pointed towards the wing-joints, and a black mark close to the wing-joints, at the base of the suture. Ground colour of the lateral surface of the mesothorax greyish-blue, of the metathorax, pale greenish-blue. *Underside* very pale dirty brown, a pair of black oval spots close to abdomen. *Legs* dirty brownish.

A b d o m e n extremely long and thin; 1-2 very slightly thickened, 3-7 very thin, 8-10 slightly thicker. Very dull olive-brown marked with grey, as follows:—1, a large lateral spot on each side, and an elongate transverse anal mark; 2, shaded with bluish-grey on sides and near sutures; 3-9, a narrow transverse basal band next suture; 10, bluish-grey. *Underside* pale grey shaded with dull black near sutures.

A p p e n d a g e s.—*Superior* 1.5 mm., black, forcipate, wide apart at bases, meeting and sometimes crossing near tips, which are straight and pointed. From the inner side of each two small spines project (see Plate xvii., fig. 2a). *Inferior* very short, thick, blunt, black tipped with dirty brown.

♀. Total length, 42 mm.; abdomen, 34 mm.; wings, fore 25 mm., hind 24 mm.; differs from the ♂ as follows:—

H e a d.—Paler, basal joint of *antennæ* brown; *clypeus* brown; *labrum* dull olive-green.

T h o r a x as in ♂.

A b d o m e n stouter than in ♂; 1-9 cylindrical, 10 swollen, 9 projecting anally underneath, the projection carrying on its upper end two small hooks; 10 short. Colour: 1-9 dark brown, shiny, anal end of each segment darker, a pale thin transverse basal band close up to each suture; 1 and 2 marked with pale greyish-blue as in ♂; 10 pale greyish-blue with a narrow transverse basal black band.

Appendages 0.6 mm., wide apart, straight, parallel, pointed; dull fuscous. (See Plate xvii., fig. 2b).

Hab.—Redlynch, near Cairns, N.Q. January, 1905. Local.

Several pairs of this species were captured round a small isolated water-hole. They appeared to cling closely to the overhanging branches round the sides of the water-hole, and only flew off a few yards when disturbed; others were sitting singly or in pairs on the trunks of the guava trees. This was on a bright sunshiny day, so that this species appears to be a dull, listless insect. I have also received one ♂ from Mackay, N.Q. It is easily distinguished from all other Australian species of *Lestes* by its extremely long abdomen. It appears to have no special affinity with any of the common southern species, but comes nearest to *L. analis*.

3. *LESTES PALUDOSUS*, n.sp.

♂. Total length, 37 mm.; abdomen, 30 mm.; wings, fore 19 mm., hind 18 mm.

Wings.—Lightly suffused with brown; *pterostigma* 1.5 mm., very dark brown. *Nodal Indicator*

2	10-11
2	10-11

Head.—*Epicranium* black; *antennæ* black; *postclypeus* black; *anteclypeus* and *labrum* dirty yellowish-brown; *labium* and *mandibles* very pale dirty brownish.

Thorax.—Fuscous above, with an indistinct paler stripe on each side of the dorsal ridge, slightly metallic in the dried specimen; sides olive-brown shading to pale greyish below. *Legs* dirty brownish.

Abdomen almost cylindrical, 1-2 and 8-10 very slightly thickened. Colour: dark fuscous above shading to pale bluish-grey on sides, duller underneath, paler next the sutures.

Appendages.—*Superior* 1 mm., apart at bases, forcipate, crossing at tips. Several minute spines along the outer ridge; basal half lobed internally, tips much narrower and bent inwards almost at right angles. Black (see Plate xvii., fig. 3a). *Inferior* separated, very small and blunt; black.

♀. Slightly larger than ♂; wings, fore 20·5 mm., hind 19·5 mm.; differs from ♂ as follows:—

Head.—*Anteclypeus* and *labrum* dull olive-brown.

Abdomen slightly thicker; very cylindrical; 9 enlarged below into a blunt projection.

Appendages short, straight, wide apart at bases, parallel, tips slightly pointed; black. (See Plate xvii., fig. 3b).

Hab.—Townsville, N.Q. January, 1905. Very rare.

A single pair of this species was taken by me on the lagoons near the town. It is an extremely dull and uninteresting-looking insect. It is remarkable that this and the preceding species, both of which come from the tropics, should be so lacking in those beautiful blue or metallic green colourations which mark the species of this genus in temperate climates. The present species is easily separated from the preceding by its smaller size and typical *Lestes* shape. It could not possibly be confused with any other Australian member of the genus; in shape it resembles *L. psyche*, but it lacks the beautiful colouring of that species.

A third species of this genus, of which I have received a pair from Mr. F. P. Dodd of Kuranda, N.Q., is probably new to science. They were forwarded to M. René Martin, who is of this opinion; but as the colouration is totally obliterated I have deferred giving a description of this species until I can obtain living specimens, as it is evidently very closely allied to two or three of our southern forms. It is similar to *L. leda* in general appearance, and may be a smaller tropical form of that insect.

4. ALLONEURA SOLITARIS, n.sp.

♂. Total length, 33-35 mm.; abdomen, 26-28 mm.; wings, fore 18 mm., hind 17·5 mm.

Wings beautifully suffused all over with lemon-yellow; *ptero-stigma* 0·8 mm., rhomboidal, black. *Nodal Indicator*

2	12-14
2	11-12

Head.—*Epicranium* jet black, with a narrow transverse band, cream-coloured or light green, between the eyes in front. This

band is *not* enlarged where it meets the eyes. *Eyes* black above, paler underneath. *Clypeus* and *labrum* jet black. *Labium* and *mandibles* pale dirty brownish.

Thorax.—*Prothorax* black. *Meso-* and *metathorax* black above, on either side a short narrow bright green humeral ray and two irregular greenish lateral bands separated by a band of black. *Underside* pale dirty brown. *Legs* dull black; *coxæ* and underside of *metafemora* pale dirty brown.

Abdomen excessively slender, cylindrical, 1-2 and 8-10 very slightly enlarged. Colour: jet black, marked as follows:—1, a dull greenish spot on each side; 2, a dull greenish line on each side of the genital appendages; 3, a basal dorsal spot, very small, pea-green, in shape like an inverted trefoil; 4-7, a basal dorsal pea-green spot cleft by the intrusion of the black dorsal ridge; in 5 this spot is about one-third the length of the segment, in 4, 6, 7 it is much smaller; 8, basal half bright green, cleft like the spot in 5, but more widely, the green extending downwards on to the sides of the segment; 9-10 black. *Underside* dull black. The size and colour of these abdominal markings vary greatly in different specimens.

Appendages.—*Superior* very short, black, subconical, separated, pointed downwards. *Inferior* consisting of a pair of minute black hooks, recurved upwards, close together. (See Plate xvii., fig. 4a).

♀. Very similar to ♂. *Abdomen* thicker and more cylindrical; no spot on 8; 10 carries two small hooks below. Colour of epicranial and thoracic bands pale brownish. *Wings* hyaline. *Appendages* very small, black. (See Plate xvii., fig. 4b).

The colouring of the markings in the ♂ varies much in different specimens, being sometimes a delicate cream colour, sometimes pale yellow, rarely bluish, but most commonly a delicate pea-green. Specimens also occur in which the rich yellow colouring of the wings is not complete, and sometimes entirely absent. The colouring possibly varies with the age of the insect.

Hab.—Kuranda and Cairns districts, N.Q. December-January. Local.

This remarkable insect is most difficult to capture. It occurs amongst the reeds that fringe the creeks here and there in the dense scrub. As it darts in and out in the most bewildering way it is almost invisible to the eye, owing to the extreme thinness of its abdomen. It is not gregarious, but generally occurs singly or in pairs, and is very sparingly distributed. On nearly every day on which I went collecting I secured one specimen, but only twice did I get a pair, and once a male and two females in one day. This fact suggested the name *solitaris*. It generally frequents the same localities as *Nososticta solida*, a much commoner insect.

This species is the first of the genus to be recorded for Australia. It is essentially a tropical and oceanic genus, all the known species inhabiting Polynesia. The present species is closely allied to *A. salomonis* Selys, from the Solomon Islands.

5. ALLONEURA COELESTINA, n.sp.

♂. Total length, 37 mm.; abdomen, 30 mm.; wings, fore 21 mm., hind 19 mm.

Wings beautifully suffused with lemon-yellow all over (more rarely with yellowish-brown). *Pterostigma* 1 mm., black.

Nodal Indicator $\left\| \begin{array}{cc} 2 & 13-15 \\ 2 & 13 \end{array} \right\|$

Head.—*Epicranium* jet black with a beautiful broad greenish-blue transverse band extending from eye to eye in front, and enlarged downwards on each side where it meets the eye. *Clypeus* black, hairy. *Labrum* black. *Labium* and *mandibles* pale dirty brownish.

Thorax.—*Prothorax* black with two greenish-blue spots on either side. *Meso-* and *metathorax* black above, with a pair of beautiful broad olive-green humeral stripes of an elongated oval shape, widest in front; sides with two bright bluish-green stripes separated by a narrow band of black. *Underside* pale dirty grey. *Legs* black; *coxæ* pale dirty brownish.

Abdomen very thin; 8 cylindrical, 1-2 slightly enlarged, 7-10 increasing gradually in width, but very slightly. Colour

black, marked as follows:—1, a blue spot on each side; 2, a greenish-blue elongated spot low down on each side near the genital appendages; 3-8, a small basal dorsal spot of bright blue-green next to suture; 8, an elongated greenish mark low down on each side; 9-10, black.

Appendages.—*Superior* very short, subconical, slightly separated, *bright blue*. *Inferior* minute, bluntly hooked and turned upwards, black. (See Plate xvii., fig. 5a).

♀. Total length, 35 mm.; abdomen, 29 mm.

Wings suffused with yellowish-brown, except at bases and tips. *Pterostigma* 1.1 mm., black. *Nodal Indicator* $\left| \begin{smallmatrix} 2 & 13 \\ 2 & 12 \end{smallmatrix} \right|$

Head as in ♂, except epicranial band, which is light yellowish-brown.

Thorax.—Dorsal marks and lateral bands pale brownish.

Abdomen cylindrical, stouter than in ♂; black, sutures marked with dull white; 9 carries underneath a projection reaching beyond the end of the abdomen, the point curving upwards and carrying two fine hooks. (See Plate xvii., fig. 5b).

Appendages very short, cylindrical, wide apart, tips blunt; black.

Hab.—Redlynch, near Cairns, N.Q. January, 1905. Very rare.

One male and two females were taken close together amongst reeds on the banks of a swift creek in the guava scrub. Habits and flight similar to those of the preceding species.

This species is very closely allied to the preceding, but the following points will at once distinguish the two species clearly:—

A. solitaris.

A. coelestina.

1. The transverse epicranial band is narrow, and *is not enlarged* on reaching the eyes.

1. The transverse epicranial band is broader, and *is enlarged* on reaching the eyes.

2. Superior appendages of ♂ *black*.

2. Superior appendages of ♂ *pale sky-blue*.

Besides this, *A. coelistina* is distinctly the larger insect of the two. I have named it *coelistina* because of the remarkable colour of the appendages.

6. ISCHNURA FRAGILIS, n.sp

♂. Total length, 27-28 mm.; abdomen, 22-23 mm.; wings, fore 15 mm.; hind 14 mm.

Wings.—Very delicate, rather narrow. *Pterostigma* 0.4 mm., rhomboidal, dull olive-brown. *Nodal Indicator* $\begin{array}{|l} 2 \quad 9-10 \\ 2 \quad 8 \end{array}$

Head small. *Epicranium* black, carrying behind a narrow bright blue transverse band, enlarged on meeting the eyes. *Eyes* black above, green beneath. *Ocelli* bronze. *Antennæ* black, basal joint thickened. *Postclypeus* green; *anteclypeus* dull bluish, a black band along the clypeal suture. *Labrum* dull bluish. *Labium* and *mandibles* pale dirty brown, tipped with black.

Thorax narrow. *Prothorax* black, with very narrow blue collar. *Meso-* and *metathorax* black above, with a pair of thin blue humeral stripes; sides blue. *Scuta* and *scutella* bluish. *Underside* greyish. *Legs* grey.

Abdomen slender; 1-2 slightly enlarged, 3-6 very slender, 7-10 slightly enlarged. Colour: 1-8, black with narrow transverse white lines along the sutures; 2, marked with bluish-grey on the sides; 7, partly blue on the sides; 9, bright blue; 10, black above, blue on the sides. *Underside*, 1-6, half of 7, and 10, pale greenish; rest blue.

Appendages.—*Superior* wide apart, very short, rather blunt, slightly divergent, black. *Inferior* minute (See Plate xvii., fig. 6a).

♀. A slightly larger insect. Total length, 30 mm.; abdomen, 25 mm.; wings, fore 17 mm., hind 16 mm.

It differs from the ♂ as follows:—

Head.—The blue band at the back of the epicranium wider, but duller. *Postclypeus* deep olive-green; *anteclypeus* and *labrum* pale greenish.

Thorax.—Humeral stripes dark green.

Abdomen thicker than in ♂, more cylindrical, deep bronze; 1-2 with blue on the sides: sutures of 1-7 banded with white; 8, bronze with very narrow transverse anal and basal blue bands, sides blue; 9, blue with a large bronze basal spot; 10, blue; 9 projects below beyond 10 and ends in a sharp point; 8 also carries a small spine underneath. (See Plate xvii., fig. 6b).

Appendages wide apart, very minute, slightly pointed.

Hab.—Atherton, N.Q. January, 1905. Rare.

It flits close to the surface of the water amongst the reeds and water plants that fringe the large lagoons and swamps. I found it on the Carrington Swamp in company with *Ischnura delicata*, *Pseudagrion cyane*, *Agriocnemis splendida*, and *A. velaris*, though by no means so commonly as these species. Its small size and swaying flight, about an inch or two above the surface of the water, make it difficult to detect and capture. M. René Martin, to whom I forwarded specimens, says of this species:—"Brauer a nommé, du Queensland, sans description, trois espèces, *Ischnura distigina*, *I. cingillum*, *I. ceruginosum*. Peut être celli-ci en est une, mais elle n'a pas tous les caractères de *Ischnura*. Je la considère comme une espèce nouvelle à nommer par vous." In this connection it may be remarked that the present species differs from other members of the genus *Ischnura* in the following important points:—(1) small head, narrow thorax, and slender wings not very rounded at tips; (2) it lacks the postocular spots. The typical characters of the genus as exhibited by *I. delicata* or *I. heterosticta* are (1) rather broad head and thorax, rather robust form, wings not remarkably slender, and well-rounded at tips; (2) brilliant postocular spots. In other respects, notably in having the 10th segment of the abdomen in the ♂ turned up anally, and in carrying a small spine under the 8th segment in the ♀, it falls naturally into this genus, and into no other. I have placed it in the genus provisionally, prior to making a more complete study of the differences exhibited.

7. PSEUDAGRION IGNIFER, n sp.

♂. Total length, 42 mm.; abdomen, 35 mm.; wings, fore, 25 mm., hind 23·5 mm.

Wings generally hyaline, but sometimes tinged with brown, especially towards the pterostigma. *Pterostigma* 0·7 mm., rhomboidal, brown. *Nodal Indicator* $\begin{array}{|l} 2 \\ 2 \end{array} \begin{array}{|l} 15 \\ 13 \end{array}$ The last post-nodal of all the wings not continuous.

Head.—*Epicranium* black behind, front brilliant rust-colour, crossed by a short black transverse line in the middle, and bordered below, next the clypeus, by a second black line. *Eyes* black; *ocelli* placed so that the front ocellus is just on the edge of the rust-colour. *Antennae* black, basal joints brown. *Clypeus* and *labrum* brilliant rust-colour. *Labium* and *mandibles* pale dirty brownish. *Mouth* edged with black.

Thorax.—*Prothorax* black, with a bluish-brown on the sides. *Meso-* and *metathorax* black, with a pair of brown humeral stripes; the sides and underside of mature specimens covered with a bluish-grey bloom. *Scuta* and *scutella* covered with bluish bloom. *Legs* black.

Abdomen thin, cylindrical; 1-2 and 8-10 slightly thickened. Colour, black; 1, and sometimes also 8, covered with bluish bloom. *Underside* dull grey or blackish.

Appendages.—*Superior* 0·5 mm., very short and blunt, divergent, black with a brownish central spot above. *Inferior* 0·2 mm., rough, separate, very blunt, brownish. (See Plate xvii., fig. 7a).

♀. Total length, 44 mm.; abdomen, 36 mm.; wings, fore 27·5 mm., hind 26 mm.

Wings.—*Pterostigma* 0·9 mm., larger and paler than in ♂. *Nodal Indicator* $\begin{array}{|l} 2 \\ 2 \end{array} \begin{array}{|l} 14 \\ 12 \end{array}$ Last postnodal as in ♂.

Head—*Epicranium* brown, a small black slanting ray reaching from each of the back ocelli to the eye, a short black central line in front of the front ocellus. *Eyes* black, with a dull

brown patch behind inwards. *Antennæ* as in ♂. *Clypeus* and *labrum* brown. *Labium* and *mandibles* as in ♂.

T h o r a x.—*Prothorax* black, spotted with brown. *Meso-* and *metathorax* deep black, with a thin brown dorsal ray on the ridge, broadest at base, and on either side a broader humeral ray of a beautiful deep brown, followed by a sublateral brown band cut by a black line about 2.5 mm. long from the fore wing-joints; a black point near the hind wing-joints. *Underside* greyish. *Legs* dirty brown.

A b d o m e n cylindrical, thicker than in ♂, 8-10 swollen below; 9 carrying underneath a brownish projection ending in two small filaments. Colour: black, with metallic green reflections, sutures greyish or brownish. *Underside* dull brown or black. (See Plate xvii., fig. 7b).

A p p e n d a g e s very short, separate, bluntly pointed, black.

H a b.—Kuranda, Atherton, Cairns, N.Q. December-February. Common at Kuranda.

It is found on all the running streams, generally amongst reeds; does not frequent marshes or still water.

This fine insect, although common, has not been recorded before. It is closely allied to *P. pruinatum* Burm., from which it differs both in colouration and in its appendages. The latter species is found in Java. Amongst our Australian members of the genus the present species must take rank in size and beauty next to *P. Billinghamursti* Martin, a beautiful Victorian species somewhat larger than this one. Our other species of this genus are much smaller insects.

8. PSEUDAGRION AUREOFRONS, n.sp.

♂. Total length, 34 mm.; abdomen, 28 mm.; wings, fore 19 mm., hind 18 mm.

W i n g s.—*Pterostigma* 0.8 mm., trapezoidal, pale olive-brown.

Nodal Indicator

2	11-12
2	9

H e a d.—*Epicranium* black behind, with a transverse olive-green ray reaching on to the eyes, where it is enlarged into a

round spot; front, near the postclypeus, golden-yellow. *Eyes* black behind, greenish on sides, bright golden-yellow in front; *ocelli* black, a small yellow spot between the front and each of the hind ones. *Antennæ* black, basal joint somewhat clubbed. *Clypeus* and *labrum* brilliant golden-yellow. *Labium* and *mandibles* dull greyish; *mouth* edged with black.

Thorax.—*Prothorax* black, spotted with olive-green. *Meso-* and *metathorax* brilliant golden-yellow above, with a black collar next the prothorax, a black ray along the dorsal ridge, and, on either side, a black humeral ray bordering the yellow. Sides deep blue, shading to greenish above. *Underside* greyish. *Legs* greyish, upper side of femora black.

Abdomen very slender, 1-2 and 8-10 very slightly enlarged. Colour: 1-2 blue, 2 with a black anal spot; suture between 2 and 3 black; 3-7 black, with metallic bronze reflections, a basal transverse greenish band next to the sutures. Sides of 3-5 blue, with an anal black spot extending downwards from the dorsal region; 6-7 black on the sides; 8-10 deep blue, sutures black; 10 with a black dorsal spot.

Appendages.—*Superior* 0.4 mm., divergent, wide apart at bases, straight, pointed, black. *Inferior* very short, bluish-grey. (See Plate xvii., fig. 8a).

♀. Unknown.

Hab.—Atherton, N.Q. January, 1905. Very rare.

Four males were taken flying up and down the creek at Atherton, over slowly-running rocky pools. It flies close to the water in a zig zag direction, often crossing from side to side or turning quite round in a semicircle. It is fond of settling, like *Pseudagrion cyane*, on floating leaves of water plants. Until the ♀ of this species can be found some doubt must always exist as to whether it is a true *Pseudagrion* or not, the genus being defined by the absence of the small spine on the underside of segment 8 of the ♀. The ♂ appears to be closely related to that of *P. rubriceps* Selys, a Javan insect. The remarkably vivid colouring of this insect is unparalleled amongst Australian *Agrionidæ*. As it skims

along over the pools the incongruity of its colouring strikes one almost as ludicrous, the brilliant golden-yellow, followed by an almost equally brilliant blue, refusing to harmonise, and producing the same effect on the eye as in the case of some brilliantly-coloured tropical bird.

9. CERIAGRION GLABRUM Burm.

This is a common species in tropical Africa. M. René Martin informs me that Baron de Selys-Longchamps, received specimens of this insect labelled "Queensland," but that he considered some error had been made. It is, at any rate, a remarkable fact that this species should exist in two so widely separated localities. In Australia I took it first at Brisbane, and have since received it from Mackay and Cairns. It is probably exceedingly local, but not uncommon where it occurs. It inhabits the reedy parts of still lagoons and waterholes, and is found climbing up the stalks of the reeds.

This species is about 40 mm. long, head and thorax dull brown, very smooth; abdomen of ♂ a beautiful reddish-pink throughout, appendages short and blunt; abdomen of ♀ brownish.

10. AGRIOCNEMIS PRUINESCENS, n.sp.

♂. Total length, 32 mm.; abdomen, 25 mm.; wings, fore 16 mm., hind 15 mm.

Wings.—*Pterostigma* very small, rhomboidal, pale transparent brownish, except at the inner inferior angle, which is black. *Nodal Indicator* $\left| \begin{smallmatrix} 2 & 8 \\ 2 & 6.7 \end{smallmatrix} \right|$ Last postnodal of forewings, and sometimes also of hindwings, not continuous.

Head.—*Epicranium* black. *Eyes* black above, a dull grey mark behind, green below; *antennae* black; *ocelli* brownish. *Postclypeus* narrow, black; *anteclypeus* very narrow, greenish, edged with black. *Labrum* greenish-blue. *Labium* and *mandibles* pale dirty brown.

Thorax.—*Prothorax* black, shaded with dark grey. *Meso-* and *metathorax* deep black, slightly metallic, a little bluish-grey bloom low down on the sides. *Underside* covered with bluish-grey bloom. *Legs* dull black, underside of femora greyish.

Abdomen cylindrical, 1-2 and 8-10 slightly enlarged. Colour: 1-2 dull black, bluish-grey bloom on the sides of 1 and at base of 2, genital appendages of 2 rather large; 3-7 deep metallic olive-green; 8 steel-coloured; 9 bluish-grey, with a very thin transverse black basal ring; 10 black.

Appendages.—*Superior* very small, touching at tips, pointed, black. *Inferior* minute. (See Plate xvii, fig. 9a).

♀. Unknown.

Hab.—Redlynch and Cairns, N.Q.; Townsville (1♂). January, 1905. Rare.

I took three males of this insignificant-looking insect flying over billabongs of still water or along the edges of stagnant lagoons. M. René Martin remarks that Selys has described a species, *A. australis*, from a ♀ only, and that this might possibly be the ♂ of that species, though the superior size of the present species leads him to regard this as new to science. I know of no Agrionid in which the ♂ is considerably larger than the ♀, and have no doubt that Selys' ♀ is distinct.

11. AGRIOCNEMIS ARGENTEA, n.sp.

♂. Total length, 21-24 mm.; abdomen, 16-19 mm.; wings, fore 10-11 mm., hind 9-10 mm.

Wings.—*Pterostigma* 0.5 mm., rhomboidal, brown or black. *Nodal Indicator* $\left| \begin{smallmatrix} 2 & 7 \\ 2 & 5 \end{smallmatrix} \right|$ Last postnodal of forewings not continuous.

Head.—*Epicranium* deep black behind, silvery white in front. *Eyes* brown above, green beneath, a green post-ocular spot on each. *Ocelli* and *antennæ* black. *Clypeus* dull white. *Labrum* black. *Labium* and *mandibles* pale dirty brownish.

Thorax.—*Prothorax* black, dusted with chalky white. *Meso-* and *metathorax* silvery white, with a broad black dorsal band, and on each side a narrower black band. *Underside* whitish. *Legs* pale brown, femora dull white.

Abdomen very thin; cylindrical. Colour: the true ground colour is a dull black, but this is completely covered in mature

specimens by a beautiful silvery white bloom, which can be rubbed off with the fingers. *Underside* dirty grey; 10 brownish.

Appendages — *Superior* very small, separated at bases, slightly divergent, cylindrical, tips blunt; colour reddish-brown. *Inferior* minute. (See Plate xviii., fig. 10a).

♀. Slightly larger than ♂, abdomen not quite so long.

Wings as in ♂. but larger. *Nodal Indicator* $\begin{vmatrix} 2 & 7 \\ 2 & 7 \end{vmatrix}$ Last postnodal of all four wings not continuous.

Head. — *Epicranium* and *clypeus* black. *Labrum* dark brown; rest as in ♂.

Thorax — *Prothorax* black. *Meso-* and *metathorax* black above, sides dull green. *Underside* dirty grey.

Abdomen cylindrical, thicker than in ♂. Colour: dirty black; 9, projecting below and ending in a small spike, pale brown, tipped with black.

Appendages separated, very short, black, somewhat pointed; just below them is a small pale brown tubercle, on segment 10. (See Plate xvii., fig. 10b).

Hab. — Kuranda, N.Q. January, 1905. Fairly common.

This pretty little species inhabits the banks of small running creeks, and is also often found in grassy places some distance from water. It flies with its body dangling almost vertically downwards, and has a pendulum-like motion, swaying from side to side. When flying its wings are invisible, and it appears as a bright silver streak, darting in and out of the grass. The ♀ is fond of hiding in the grass, and may be obtained by sweeping, but is more likely to be found in cop.; separate females of this species could only with difficulty be recognised distinctively, unless accompanied by the males. The ♂ is quite unlike any other of the Australian members of the genus, and comes nearest to *A. exsulans* Selys, of New Caledonia, a larger insect.

EXPLANATION OF PLATE XVII.

Fig.1.—*Argiolestes aureus*, n.sp.

Fig.2.—*Lestes tenuissimus*, n.sp.

Fig.3.—*Lestes paludosus*, n.sp.

Fig.4.—*Alloneura solitaris*, n.sp.

Fig.5.—*Alloneura coelestina*, n.sp.

Fig.6.—*Ischnura* (?) *fragilis*, n.sp.

Fig.7.—*Pseudagrion ignifer*, n.sp.

Fig.8.—*Pseudagrion aureofrons*, n.sp.

Fig.9.—*Agriocnemis pruinescens*, n.sp.

Fig.10.—*Agriocnemis argentea*, n.sp.

a. Appendages of ♂, dorsal view.

b. Segments 9, 10, and appendages of ♀, lateral view.